

EXPERIMENTS IN WAKING HYPNOSIS FOR INSTRUCTIONAL PURPOSES¹

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IN another article² I have discussed certain values of experiments in hypnosis for instructional purposes. In that article

I called attention to three ways in which class experiments in hypnosis may aid instruction in general psychology, as follows: first, through the arousal of increased interest among students; second, through the increased effectiveness of instruction against telepathy, spiritism, and occultism in general; and third, through the increase of concreteness and clearness in presenting various fundamental psychological facts. Professor McDougall, in his article on "Hypnotism" in the *Encyclopaedia Britannica*,³ says, "As a method of psychological investigation hypnotism has proved . . . capable of throwing much light on the constitution of the mind, has opened up a number of problems of the deepest interest, and has done more than any of the many branches of modern psychology to show the limitations and comparative barrenness of the old psychology that relied on introspection alone and figured as a department of general philosophy." If hypnotism as a field of research has accomplished results for psychology deserving of this high praise, some of the classical experiments deserve to become standardized for instructional purposes in classroom and laboratory in general as well as in abnormal psychology.

In the article referred to above, I did not describe in detail the nature of the experiments which I have found most useful; nor did I discuss the distinction which I regard as important between what I shall now call sleeping hypnosis and waking hypnosis. The purpose of the present paper is to justify the use of the term "waking hypnosis" and to describe in some detail the methods employed and results obtained in typical experiments.

I. THE MEANING OF WAKING HYPNOSIS

In 1843, with the publication of his book *Neurypnology*, Dr. James Braid, of Manchester, England, contributed to the scientific world much of the theory as well as the vocabulary of

¹ Presented in condensed form at the meeting of the American Psychological Association, University of Wisconsin, December 29, 1923.

² "Hypnosis in the Service of the Instructor", *Psych. Rev.*, 1924, Vol. 31, pp. 88-91.

³ 11th edition, Vol. 14, p. 203.

modern hypnotism. He coined the term "hypnotism" (from the Greek, meaning sleep), and he defined it as "nervous sleep." (He did not distinguish "hypnotism" from "hypnosis," for he did not use the latter word.) In 1866 Dr. Liébeault, in France, published his book on hypnotism under the title *Du Sommeil*; and, as the title of the book is sufficient to indicate, he regarded hypnosis as a form of artificial sleep. Dr. Liébeault was the source of what is called the Nancy school of hypnotism, and "to him we owe the development of modern hypnotism";⁴ though Dr. Bernheim, attracted by Dr. Liébeault's work in 1882, has been the most influential of any of the workers in the Nancy school. As with Braid and Liébeault, so at the present time the commonest type of definition of hypnosis is in terms of sleep. Thus Baldwin's *Dictionary of Philosophy and Psychology* defines hypnosis as "an artificially induced sleep-like or trance-like condition of mind and body." And Professor McDougall, in his article in the *Encyclopaedia Britannica*, calls hypnosis "a condition allied to normal sleep." He says further that although the Nancy school "went too far" in seeking to identify hypnosis with normal sleep, "the views of the Nancy investigators have prevailed, and are now in the main generally accepted."

That this is true so far as American psychologists are concerned is evident from reference to their use of the term "hypnosis." Some psychologists and physicians writing in America, for example, Münsterberg⁵ and Coriat,⁶ have criticized the sleep theory of hypnosis; and yet they have accepted it to some extent. Thus Münsterberg said, "It lies near to compare it [hypnosis] with sleep"; and he further said⁸ that suggesting sleep is the best method of inducing hypnosis. Coriat admits that "to a limited extent hypnosis outwardly resembles normal sleep. The hypnotic state," he says, "can be brought about by the same influence and conditions as produce sleep."⁹ Sidis explained hypnosis in terms of dissociation without reference to sleep; and yet he seemed to assume that sleep was usually involved, for he continued to use the vocabulary and methods of sleeping hypnosis.¹⁰ Prince, like Sidis, defines hypnosis entirely in terms of dissociation without

⁴ J. Milne Bramwell, *Hypnotism*, 3d edition, p. 32.

⁵ *Psychotherapy*, Ch. 5.

⁶ *Abnormal Psychology*, Ch. 8.

⁷ *Op. cit.*, p. 112.

⁸ *Ibid.*, p. 114; *Psychology, General and Applied*, p. 258.

⁹ *Op. cit.*, p. 198.

¹⁰ *Psychology of Suggestion*, pp. 9, 13, 14, 119, 151.

reference to sleep;¹¹ but he, too, like Sidis, constantly speaks of it in terms of sleep, as a state from which the subject "wakes."¹² Though Scott in general speaks of hypnosis as "simply an extreme example of suggestion,"¹³ he sometimes refers to it as "artificial sleep."¹⁴

Practically all the references to hypnosis in the American literature in general psychology are, without much if any qualification, in terms primarily of an artificially induced state of sleep. Thus Pillsbury says of it, "The state is much more readily induced if the patient remains passive and is told from time to time that he is going to sleep."¹⁵ Judd says, "In many respects it is a condition closely related to normal sleep."¹⁶ Angell says, "Hypnosis . . . , as the word suggests, is a state in many particulars closely resembling sleep."¹⁷ Warren says, "The peculiar behavior of a hypnotized subject is understood if we compare him with a dreamer."¹⁸ Breese says, "The first stages of hypnosis resemble sleep."¹⁹ Seashore says, "There is . . . a kinship between the dream state and the hypnotic state."²⁰ Woodworth says, "Hypnosis is a sleeplike and passive state."²¹ Titchener says, "Hypnosis may . . . be regarded as a state in which the organism is partly asleep, and partly awake."²² James, writing in 1890, defined hypnosis in terms of sleep, and regarded "the simple verbal suggestion of sleep (the so-called Nancy method)"²³ as the best method of hypnotizing.

It should be added, also, that standard works on hypnosis by writers such as Moll, Forel, Lloyd Tuckey, and others, treat hypnosis primarily as a state similar to natural sleep, though noting, as we shall see, that in some cases of hypnosis sleep may

¹¹ *The Unconscious*, p. 62.

¹² *Ibid.*, pp. 31, 38, 64, 66, 67, 73, 96. Since writing this article I have seen Dr. Prince's latest published statement on hypnosis (this journal, 1923, Vol. 18, pp. 238-43). Here Dr. Prince defines hypnosis in terms of "depersonalization" and "repersonalization", of dissociation and synthesis. He says, "The state may vary all the way from simple abstraction to extreme alterations of personality commonly termed secondary personality" (p. 238). But still Dr. Prince occasionally falls into the use of the ordinary vocabulary of sleeping hypnosis, and twice in the article he contrasts hypnosis with "the waking state" (pp. 240, 242).

¹³ *Influencing Men in Business*, p. 62.

¹⁴ E.g., in *The Psychology of Advertising*, p. 174.

¹⁵ *Fundamentals of Psychology*, Revised Edition, pp. 578, 79.

¹⁶ *Psychology*, Revised Edition, p. 279.

¹⁷ *Introduction to Psychology*, p. 253.

¹⁸ *Elements of Human Psychology*, p. 322.

¹⁹ *Psychology*, p. 451.

²⁰ *Introduction to Psychology*, p. 371.

²¹ *Psychology*, p. 547.

²² *A Beginner's Psychology*, p. 341.

²³ *Principles of Psychology*, Vol. 2, p. 593, note.

not be present. Even Bernheim, in spite of criticisms of the sleep theory, which we shall point out, did not actually break away from the influence of the theory, or, so far as he did, he wished to suppress the term "hypnosis" altogether.

Further reference to the past history of hypnotism, or to present-day theories as found in standard textbooks, is unnecessary to show that the general trend of opinion has been, and still is, to regard hypnosis as a state allied to natural sleep. This seems strange, however, especially in view of the *complete* history of the term and of *all* the observed facts from the time of Braid to the present. For, ever since the time of Braid, phenomena commonly called hypnotic have been repeatedly produced in the completely waking state.

In 1847 Braid attempted to suppress the term "hypnotism," having discovered that sleep is not essential to all the phenomena which he had previously called hypnotic.²⁴ He attempted to substitute the term "monoideism." If the term "hypnotism" were still to be used, Braid said, it should be restricted to those cases of artificial sleep which are followed by amnesia. In 1883 Bernheim reported to the Congress for the Advancement of Science, at Rouen, France, the production in the waking state of apparently all the phenomena usually called hypnotic except amnesia.²⁵ At that time Bernheim was unaware of Braid's observations of the production of hypnotic phenomena in the waking state, but shortly afterwards Bernheim came upon writings by Braid which showed that Braid had discovered the production in the waking state of paralysis, contractures, illusions, and hallucinations. Bernheim seems to have been the first to add analgesia and anesthesia to the list.²⁶ In 1892 a Committee of the British Medical Association reported that "sleep . . . is not necessarily present" in what is called hypnosis.²⁷ Since Bernheim's rediscovery of hypnotic phenomena in the waking state, numerous observers have confirmed and restated this fact, *e.g.*, Lloyd Tuckey, Moll, and Forel. Some have supposed that hypnotic phenomena in the waking state could be produced only in "trained subjects," previously hypnotized by the sleeping method. James, *e.g.*, expressed this opinion.²⁸ But Bernheim, Lloyd Tuckey, Moll, Forel, and others have observed and reported the production of hypnotic phenomena in the waking state *with subjects never*

²⁴ See Bramwell, *op. cit.*, p. 283; Bernheim, *Suggestive Therapeutics*, p. 86.

²⁵ *Op. cit.*, p. 85.

²⁶ *Ibid.*, p. 86.

²⁷ Bramwell, *op. cit.*, p. 36.

²⁸ *Op. cit.*, p. 615.

before hypnotized.²⁹ And finally, Bernheim has reported that amnesia is no exception to the rule that, as he has expressed it, *all* the phenomena commonly called hypnotic can be produced in the waking state.³⁰

If *all* the phenomena commonly called hypnotic, including amnesia, can be produced in the completely waking state, in subjects who have never been hypnotized before, should we follow Bernheim's counsel and "suppress completely the word 'hypnosis' and replace it by 'the state of suggestion'?"³¹ Or should we be determined more by practical convenience than by etymology, and say, with Moll,³² "Hypnosis is not invariably a state of sleep"? The second alternative is clearly to be preferred. "Post-state-of-suggestion," *e.g.*, would be a cumbersome substitute for "post-hypnotic". And furthermore, to speak of "suggestion in the waking state" does not convey the meaning intended if one refers to the production of contractures, anesthetics, etc., even including amnesia and post-hypnotic phenomena. Sidis recognized the production in the waking state of a *few* hypnotic phenomena with a *few* subjects but called it rare,³³ and an exception to the general rule that the suggestibility of waking persons is of an opposite type to that of subjects in the hypnotic sleep. The general rule is, according to Sidis, that suggestion to waking subjects in order to be effective must be indirect and veiled; while to subjects in the hypnotic sleep effective suggestions may be direct. Sidis was certainly wrong in failing to observe that *direct* suggestion is effective in producing hypnotic phenomena in the waking state with practically all subjects; and yet, through usage, "suggestion in the waking state" does convey the meaning which Sidis ascribes to it, namely indirect suggestion, and not the production of the typical hypnotic phenomena.

The long and practically universal recognition given to amnesia (following the state) as a test of hypnosis—usually a test of the deepest stages, is evident to any student of the subject. Thus Braid, as we have seen, after attempting to suppress the term "hypnotism," or, as we would now say, "hypnosis," admitted it in cases where amnesia could be produced. "The earlier classifications such as those of Liébeault and Bernheim . . . made

²⁹ Bernheim, *De la Suggestion*, Paris, 1911, p. 16; Lloyd Tuckey, *Psychotherapeutics*, 3d edition, p. 69, note; Moll, *Hypnotism*, 4th edition, translated, p. 197; Forel, *Hypnotism*, 5th edition, translated, p. 117.

³⁰ *De la Suggestion*, p. 86.

³¹ *Hypnotisme et Suggestion*, 3d edition, Paris, 1910, p. 77.

³² *Op. cit.*, p. 47, note.

³³ *Op. cit.*, p. 27.

the criterion that they worked on, the loss of memory.”³⁴ Sidis said, “Amnesia is the ripe fruit of hypnosis.”³⁵ Coriat calls “loss of memory” one of the “four most important symptoms of hypnosis.”³⁶ Pierre Janet says, “Hypnosis is just a state that leaves no remembrances with the patient when he awakes.”³⁷ And Moll said, “We must call a state hypnosis . . . if there is a subsequent loss of memory.”³⁸

Since amnesia has received such long and general recognition as a test either of hypnosis in contrast with a non-hypnotic state, or of the deeper stages of hypnosis in contrast with the lighter stages, there is certainly sufficient justification for calling hypnotic a state in which amnesia can be produced, even though the state is a waking one. Such would be a state of waking hypnosis, the amnesia being produced by direct suggestion, and the waking condition being maintained normally in the absence of any suggestion of sleep. And having admitted the use of the term “waking hypnosis” in cases where amnesia is produced in the waking state, we have made the way clear for an extension of the term to those cases of contractures, anesthetics, and the like, suggested in the waking state even without the production of amnesia. However, subjects in whom amnesia cannot be produced in the waking state are not suitable for the experiments which I am going to describe, and consequently insistence upon this last point is not necessary.

Waking hypnosis is in no sense to be construed as a form necessarily of light or slight hypnosis, for in the production of amnesia and some of the other hypnotic and post-hypnotic phenomena it is like the usual deep hypnosis except for the absence of sleep. It is to be defined, not by contrast with deep hypnosis, but merely by contrast with sleeping hypnosis. It is to be called hypnosis for, inasmuch as the *essential* feature of sleeping hypnosis (as Sidis, Prince, McDougall, Coriat, and others, have shown) is dissociation, it would claim to be a more direct application of the principles of dissociation without reference to sleep at all. All sleep is dissociation, but not all dissociation is sleep. Ordinary lapses of memory in everyday life and absent-minded acts occurring during times of concentrated attention are cases of dissociation, but not of sleep. Just as exponents of sleeping hypnosis take their cue from dissociation as illustrated by sleep,

³⁴ H. C. Miller, *Hypnotism and Disease*. Boston, 1912, p. 70.

³⁵ *Op. cit.*, p. 71.

³⁶ *Op. cit.*, p. 197.

³⁷ *Mental States of Hystericals*, p. 96.

³⁸ *Op. cit.*, p. 197.

exponents of waking hypnosis would take their cue from such examples of dissociation in normal waking life as absent-minded acts or ordinary lapses of memory.

Comparison of waking hypnosis with what Sidis called the hypnoidal state may make the meaning of the former clearer. The two are directly opposite. Waking hypnosis is genuinely hypnotic and genuinely waking, while the hypnoidal state is a sort of sleep state, and is not hypnotic. Sidis said of it: "We must warn . . . against . . . confusion with any hypnosis, light or otherwise. The hypnoidal state . . . is widely different from hypnosis. The hypnoidal state . . . is a sleep state. . . . Sleep developed out of the hypnoidal state."³⁹

The relationship between what I call waking hypnosis and the theories and practice of the "new Nancy school" (Coué and his disciple at Geneva, Baudouin) should be pointed out. There seems to be even *less* recognition of real waking hypnosis by Coué and Baudouin than by Bernheim, of the old Nancy school. Coué has largely abandoned sleeping hypnosis,⁴⁰ and his simple experiments in contractures for the purpose of teaching auto-suggestion "are carried out when the subject is in the waking state."⁴¹ Coué himself denies that such experiments are hypnotic, apparently quibbling over the etymological significance of the term. Baudouin prefers to say that Coué's "method is now wholly based upon slight hypnosis."⁴² But, Baudouin says, these "slighter degrees of hypnosis . . . are not followed by amnesia";⁴³ and, in fact, Coué and Baudouin have apparently expressed no interest in the production of the typical phenomena of deep sleeping hypnosis with the subject in the waking state. Baudouin seems not to recognize that amnesia can be produced in the waking state, saying even that it can rarely be produced on the first occasion in sleeping hypnosis.^{43a} The recognition by Bernheim that amnesia can be produced in the waking state seems to have been overlooked by the new Nancy school. And I might add that I have not found in Bernheim's writings any description of significant experiments involving amnesia in the waking state.

In the development of my technique, however, as I shall point out later, I have been influenced to some extent by the methods employed by Coué as described by Baudouin. These methods are

³⁹ *The Causation and Treatment of Psychopathic Diseases*, p. 363.

⁴⁰ Baudouin, *Suggestion and Autosuggestion*, p. 308.

⁴¹ *Ibid.*, p. 262.

⁴² *Ibid.*, p. 245.

⁴³ *Ibid.*, p. 296.

^{43a} *Ibid.*, p. 244.

capable of elaboration and extension so as to produce the phenomena associated with deep sleeping hypnosis, such as amnesia and post-hypnotic phenomena, without the production of a sleeping or even a drowsy state.

A description such as I have attempted of waking hypnosis and its contrast with sleeping hypnosis can be given without raising the vexed question of just what constitutes sleep in its physiological and psychological aspects. The objection might be made that my method produces an hypnotic sleep state without such being suggested directly; and in the case of subjects previously put into the deep hypnotic trance this is true enough. For this reason I have confined my experiments in waking hypnosis to subjects never before hypnotized. Anyone who has seen the production of simple contractures such, for example, as those of the Coué type, by direct suggestion to subjects never before hypnotized and without any suggestion of sleep, has noted the entire absence of the characteristics of hypnotic sleep. And there are no more signs of sleep even when one goes further by similar methods and produces amnesia and post-hypnotic phenomena.

II. EXPERIMENTS IN WAKING HYPNOSIS

My first practical experience with hypnosis, especially in the effort to illustrate in a course in abnormal psychology points made by Dr. Prince in *The Unconscious*, was with the usual type of sleeping hypnosis. I soon found it possible and expedient, however, to use a completely waking type to illustrate the same points. Now, after having done experiments on several hundred subjects, in groups or individually, by means of the method of waking hypnosis, I have become further convinced of its merits.

The method of waking hypnosis possesses the following advantages, in my opinion, over the various methods of sleeping hypnosis, at least for class demonstration and instructional purposes, and in some cases for therapeutic purposes. First, it is less mysterious in appearance, and the total impression is more desirable. The psychologist who uses hypnosis partly for the purpose of teaching against occultism desires to avoid the appearance of an occult procedure. Second, it usually takes less time. With an individual subject or with a group, one usually begins to get results in two or three minutes, if not in five or ten seconds; while sleeping hypnosis, when first used with a subject, usually requires a longer time before results are obtained. Third, it is easier, requiring less effort on the part of the experimenter;

and it is easier for the beginner to learn. Fourth, it can be employed on a larger percentage of subjects with success at the start than can the usual methods of sleeping hypnosis. Fifth, if for any reason sleeping hypnosis is desired, one can easily change to the methods of producing the sleeping state with greater chance of success if the first suggestions by the method of waking hypnosis have been successful.

The technique of waking hypnosis which I employ may be described in part by contrasting it with the usual methods of sleeping hypnosis. To hypnotize by the most usual sleeping method one begins by explaining to the subject the psychological conditions of normal sleep. One calls attention to the part played by a lessening of external stimuli, especially light and sound, by the concentration of attention on some one simple situation, as in the classic method of putting oneself to sleep by counting sheep, and by the sleep-producing effect of slight monotonous stimuli. One may speak of the way in which the mother puts her child to sleep, and of the sleepiness that often comes upon a man while in the barber's chair, experiencing the manipulations of the barber. The hypnotizer explains that he is about to employ similar methods to induce in the subject first a drowsy condition and finally a condition of deep sleep, like normal sleep except that the subject will always be conscious of what the operator is saying. Then, in terms of the usual immobility of the body during sleep, contractures may be explained. In terms of normal dreams, illusions and hallucinations occurring in the hypnotic sleep are made clear. Amnesia that may follow the hypnotic sleep is compared to the amnesia for one's dreams that usually follows waking from natural sleep. Somnambulism in the hypnotic sleep is compared with the somnambulism that sometimes occurs in natural sleep. Then the hypnotizer proceeds to suggest drowsiness in various ways. He may have the subject gaze fixedly upon a bright object and at the same time suggest that a feeling of drowsiness will begin to appear. If the eyes soon close so that the subject cannot open them, the operator says this is because of the sleep that is overcoming the subject. Passes may be used, accompanied by suggestions of sleep; and so on, according to old and familiar methods. The subject manifests increasingly the external signs of drowsiness, and actually begins to feel drowsy and sleepy; and finally he may fall into the somnambulist state, though more frequently stopping short of this.

Now, in all this there have been the following features: first, a preliminary explanation in terms of sleep; second, a continued

suggestion of sleep by direct and indirect means; third, an experiencing by the subject of the familiar symptoms of drowsiness and sleep; and fourth, some of the external bodily signs of drowsiness and sleep. Those who, like Münsterberg, Sidis, Coriat, and Prince, as referred to above, explain hypnosis primarily in terms of concentration of the attention and of dissociation, without reference to sleep, would not give a preliminary explanation to the subject such as I have described; but the other three points which I have mentioned would apply in most cases to their practice of hypnotism. In what I call waking hypnosis, however, all four of these features are absent: sleep is not mentioned in the preliminary explanation to the subject; sleep is not suggested, directly or indirectly; the subject experiences neither drowsiness nor sleepiness, if we may trust his introspective account; and there are present none of the objective indications of drowsiness or sleep.

The closest approximations to my personal technique that I have found in the literature of the subject are the methods of Wingfield⁴⁴ and of Coué as described by Baudouin.⁴⁵ Wingfield's type of preliminary explanation to the subject is directly in terms of dissociation without reference to sleep, and the same is true of Coué's preliminary explanation, which, however lacking on the scientific side, is good for practical purposes. Examples of involuntary ideo-motor action may be given, such as the tendency of the hand to illustrate a spiral if one is attempting verbal definition of it. Examples of absent-minded actions and of lapses of memory may be given, as illustrations of dissociation in the waking state. Then, without any reference whatever to sleep or to drowsiness one may proceed to an artificial manipulation of the subject's attention so as to produce by direct suggestion the various dissociative effects that one may desire. Coué's methods of producing contractures are the ones that I begin with, sometimes using Chevreul's pendulum for a preliminary exercise with difficult subjects. Contractures can easily be produced with practically all subjects by Coué's methods, and those who are familiar with them, and especially those who have been subjects, are agreed in calling the state of the subject a waking state.

Wherein then does my method differ from that of Coué and Baudouin, and that of Wingfield? In the practice of waking hypnosis I part company with Wingfield as soon as his preliminary explanation to the subject is finished, for he then begins to suggest

⁴⁴ *Introduction to the Study of Hypnotism*, 2d edition, London, 1920, pp. 49ff.

⁴⁵ Baudouin, *Suggestion and Autosuggestion*, Pt. III, Chs. 2, 3.

sleep, or at least drowsiness. His first typical suggestion to the subject, while the subject gazes at a cut-glass crystal, is, "Let your eyes get as heavy as ever they can, and let yourself become as drowsy as possible."⁴⁶ Coué remains within the field of waking hypnosis so far as the four points mentioned above are concerned. But I have been interested to extend the method and to produce by the same sort of direct suggestion the characteristic phenomena usually associated with deep sleeping hypnosis, such as amnesia and post-hypnotic phenomena, without the induction of sleep any more than in the case of the contractures of Coué's exercises. As has been pointed out above, Coué does not do this, and Baudouin regards sleep as essential in the production of amnesia.

Though Bernheim has recognized and asserted, as has been noted above, that *all* the hypnotic phenomena, including amnesia, can be produced in the waking state, I have not found in the literature any description by him, or by anyone else, of experiments in waking hypnosis involving amnesia and post-hypnotic automatic writing of the forgotten experience, or involving subconscious solution of problems given during the state of waking hypnosis, with amnesia for the problems produced immediately, and the answer given by automatic writing. Such experiments are exceedingly simple; and it is because of their simplicity and ease of performance, and at the same time because of their value for instructional purposes, that I venture to speak of them and to ask if they do not deserve to become a part of the standardized technique of instruction in the fundamentals of abnormal psychology, just as the mirror-drawing experiment, for example, has become universally included among the instruments of instruction in educational psychology.

Waking hypnosis may be used either in group or in individual experiments. The group experiment has two main purposes (aside from its therapeutic uses): first, to teach large numbers easily and quickly, through their own experiences as subjects or through observation of a considerable number of other subjects, the meaning of hypnosis; and second, to select the better subjects for individual experiments. After a preliminary explanation to a group of students regarding the chief principles of dissociation and of suggestion, direct suggestions to the group that their eyes, when closed, cannot be opened, or that their hands, if clasped together tightly, cannot be unclasped, will cause such contractures

⁴⁶ *Op. cit.*, p. 51.

in a considerable proportion, if not in the majority or even all, of the group, if made properly, as a little experience enables anyone to make them. I recently obtained results with 100 per cent of a group of 12, and a few months ago I obtained results with 24 of a group of 28. In no instance have I failed to get results from some members of the group.

In individual experiments the meaning of dissociation and the fact of the independent functioning of dissociated "neurograms" (to use Prince's term) may be illustrated by suggesting to the subject in the waking state amnesia, for example, for his name, and then by causing, through appropriate suggestions, automatic writing of the name while the amnesia still persists. By proper suggestions to a good subject one can cause automatic writing such that the subject is not aware either of what his hand is writing, or even that his hand is writing anything. To do an experiment like this by waking hypnosis takes only a short time, seems very matter of fact, and can be done with subjects who have never been hypnotized before. If one wishes in this connection to illustrate how the planchette works, a planchette may be substituted for pencil and paper. In elementary classes this is worthwhile. It was Gurney, as James relates,⁴⁷ who first conceived the idea of using the planchette to "tap" the subconscious processes involved in post-hypnotic suggestions; but Gurney used sleeping hypnosis for this purpose.

Such an experiment as I have described would illustrate what Prince devotes considerable space to, in *The Unconscious* (pp. 15ff), namely, the conservation of forgotten experiences. An experiment designed to show the independent functioning of dissociated neurograms in a greater degree is Prince's experiment in subconscious calculation (p. 96). This experiment, however, can be done by means of waking hypnosis, with subjects never before hypnotized. With a subject in whom amnesia can be produced quickly in the waking state, a problem in mental arithmetic may be given, for which amnesia is produced immediately, before there is time for any effort at solution. The suggestion may be made that the answer will be written automatically at the end of five minutes, with complete amnesia for the problem persisting during this time. In the working out of these suggestions we have an illustration of the simultaneous activity of the dissociated cerebral processes involved in solving the arithmetical problem, and of other cerebral processes involved in conscious attention to the class discussion or to some assigned task. Pro-

⁴⁷ *Op. cit.*, p. 615.

fessor Woodworth refers approvingly to one of Prince's experiments of this sort, with a subject, however, who has a double personality; and Professor Woodworth says, "It is weird business, however interpreted, and raises the question whether anything of the same sort . . . occurs in ordinary experience."⁴⁸ If the experiment is done with a subject never hypnotized before, selected from the class, and in a completely waking state, there is nothing in the least "weird" about it; and it answers the question which Woodworth asks in the last part of the sentence quoted above, being evidence that "separate [cerebral] fractions of the individual"⁴⁹ can and do function independently and intelligently at the same time, in strictly normal and healthy subjects.

The student often gets the impression from a study of Prince's book, though Prince does not intend it, that such experiments in hypnosis as are described, illustrating, for example, subconscious computation as in the case just referred to, can be performed only with very exceptional or even psychopathic subjects, since the subjects of most, if not all, of the experiments described in the book are sufferers from some of the forms of mental disease, as was the case with Charcot's subjects. Among the subjects described by Prince, M—l has psycholeptic attacks (p. 33), Mrs. W. has phobias (pp. 34f), Mrs. E. B. suffers from traumatic hysteria (pp. 35, 36), another subject has hysterical ties (p. 37), and the next two subjects mentioned, Miss B. and B. C. A. (p. 39), are cases of multiple personality. These are all of the subjects of the first group of experiments in hypnosis described in the book (pp. 31-39). To produce exactly the same results with healthy subjects selected from a class of students, and by means of hypnosis in a completely waking state, is much to be preferred.

Subconscious perceptions (discussed by Prince on pp. 52ff) may be illustrated in the manner that Prince suggests, but by means of waking as well as of sleeping hypnosis. "A simple method," Prince says, "is to ask a suitable subject to describe the dress of some person in the audience [or class], or of objects in the environment; if he is unable to do this, then to attempt to obtain as minute a description as possible by automatic writing or verbally after he has been hypnotized" (p. 53). I have frequently obtained through waking hypnosis correct and detailed descriptions of what had previously been entirely beyond recall regarding such subconsciously perceived objects.

An interesting experiment to illustrate the reality of pain

⁴⁸ *Op. cit.*, p. 560.

⁴⁹ *Ibid.*

in connection with functional diseases, is to cause pain in the subject's hand, or a toothache, or any sort of pain that one may desire, which is to continue for a minute, or any other specified length of time, after the suggestions of the experimenter cease. Amnesia may then be produced regarding the cause of the pain, and the subject, perhaps in embarrassment, will writhe with pain, knowing nothing as to the cause of it, until the suggested time has elapsed. Such an experiment, like the others which I have described, obviously can be performed effectively in waking hypnosis only with subjects in whom amnesia can be produced by direct suggestion in the waking state. And when amnesia can be produced readily in the waking state, post-hypnotic suggestions of all sorts can be illustrated as well as in deep sleeping hypnosis.

The step to effective autosuggestion, or autohypnosis, is shorter from waking than from sleeping hypnosis. My usual routine in giving a first lesson in autosuggestion is first to close the eyes of the subject, then to produce contractures of the hands, and then to produce analgesia in one hand or arm—all by direct suggestion in the waking state. Then I ask the subject to produce the same results by his own suggestion to himself. After he has done this, instruction may be given in the effective use of autosuggestion in various practical ways. I recently gave an interesting lesson in autosuggestion to one of my students. When he had produced analgesia in his right hand by autosuggestion alone, he was still unconvinced by the test of pinching with his left hand, and he asked for a needle. I gave him one, properly sterilized. He pricked his right hand repeatedly, so that the blood flowed from each needle wound, before he could fully satisfy himself that he had actually learned to produce analgesia by autosuggestion. As a final illustration of the practical applications of the principles of waking hypnosis, I removed by direct suggestion a headache of which the subject had complained at the beginning of the experiments. A further lesson is apparently needed by this subject, however, before he will be able to use autosuggestion effectively in practical ways; for he reported two days later that he had been able to produce contractures by autosuggestion, but not analgesia, when working alone.

The following description of a series of experiments in waking hypnosis carried out during a single class hour, on the first occasion of reference to hypnosis, shows what can be done in a short time. If more time is at one's disposal, variations and elaborations of such experiments are possible. At the end of one class hour I did a group experiment with the whole class, of fifteen students, in order to select the better subjects. Then, at the

beginning of the next class period one of these better subjects volunteered for individual experiments. The subject selected was a man of about thirty-five, never before hypnotized (except in the group experiment of the day before), and with a good history of physical and mental health. I first tested him to see if amnesia could be produced in the waking state. I readily produced amnesia for his name, with the suggestion that his hand would write it, while the amnesia still persisted. Pencil and paper were then provided, and his hand was concealed from his view, behind a screen. His hand immediately began to write his name. When the name was about half written the subject spoke up to say that he was sorry that the experiment did not seem to be working. After the name was completely written, and after amnesia for his name disappeared in five minutes as had been suggested, his writing was shown to him. The genuineness of his surprise and interest may be easily imagined. I next tested his normal ability in mental arithmetic, finding it fair. Then I made preliminary suggestions to him of the waking hypnotic type. I explained that I would give him a problem in multiplication, which he would solve subconsciously and the answer of which he would write automatically, with amnesia all the while both for what the problem was, and for the fact that a problem had been given to him. I then said, "Multiply 175 by 25," and I *immediately* thereafter caused amnesia for the figures and for the fact that a problem had been given. Then, testing his normal conscious attention to the class discussion, which I continued, by asking him miscellaneous questions, I allowed time for the subconscious computation of the problem and for the automatic writing of the answer. His hand wrote 4,325. The correct answer to the problem is 4,375. In tests given to the subject in the solution of similar problems before dissociation had been produced in waking hypnosis, similar errors had occasionally been made. I have in general not found subconscious computation either more or less accurate than the conscious solution of similar problems. I next caused by suggestion a sharp burning pain on the back of one hand, which I touched with a pencil. Amnesia for the cause of the pain was produced, and the pain remained constant for a minute, as had been suggested. I had produced analgesia in his right hand as one of the preliminary experiments. I have found it generally more difficult to cause pain by suggestion than to cause analgesia.

As a final experiment, towards the close of the hour, I illustrated subconscious perception. I tested the subject's memory

for details of the clothing of a man on the back seat of the classroom, a man, however, whom the subject had talked with earlier in the day. Finding him unable to recall any details whatever of the man's clothing, I tried the method of automatic writing without the use of hypnosis, and got an imperfect description. Then, through waking hypnosis I obtained a detailed and accurate description of the man's clothes. He persisted in saying that the man wore a white shirt with a dark stripe in it, in spite of suggestions from me that he would gradually come to recall it more accurately. To me the shirt seemed to be pure white; but after the termination of the experiment I discovered that there had originally been a dark stripe, which had faded out to such an extent that it was not visible to me at a distance of ten feet.

My notes contain descriptions of numerous experiments of a similar sort performed in connection with a course in abnormal psychology which I give each year. The experiments described above were done towards the end of a course in applied psychology which I gave at the University of Wyoming during the summer of 1923, the purpose of the experiments being to illustrate points in the topic of "Psychology and Medicine." In such a course little time could be allowed for such experiments, and consequently I was interested to see how much I could crowd into a single class hour.

In conclusion I might add that I am interested in the employment of the ordinary type of sleeping hypnosis for some purposes, especially in therapeutic work. I am interested in the sort of psychoanalysis by means of hypnosis which Dr. Hadfield, in England, has called hypnoanalysis;⁵⁰ and in attempting to remove phobias, for example, through hypnotic exploration of childhood. or later, amnesias, I have thus far preferred the sleeping type of hypnosis. However, I almost invariably begin the induction of sleeping hypnosis by the method of waking hypnosis described above; and I do not begin to suggest sleep until suggestions of contractures in the waking state have been effective. In this paper I have chosen to limit my discussion to waking hypnosis, and to emphasize its possibilities; for, if its possibilities were generally recognized, as is very obviously not the case, much of the present disinclination among psychologists to the use of hypnosis for experimental purposes would, I believe, entirely disappear.

⁵⁰ See H. C. Miller (editor), *Functional Nerve Disease*, London, 1920, Ch. 5, by Dr. Hadfield. Dr. W. S. Taylor has introduced the term "hypnoanalysis" in America through recent articles in this journal.